

REMARKS/ARGUMENTS

Review and reconsideration on the merits are requested. The applicants acknowledge their telephone interview with Examiner Leader, Dr. Taylor (the co-inventor) and the undersigned on November 28, 2007.

Claims 1-20 and 41-43 have been withdrawn from consideration. Claim 21 has been amended to present claim 37 in independent form.

As a result of the foregoing amendments, the rejection at paragraph 4 of the Office Action under 35 U.S.C. § 103(a) over van Kempen et al. (U.S. Patent 6,818,115), the rejection of claims 27-29 and 38-40 at paragraph 9 of the Office Action over van Kempen in view of Botts et al. (U.S. Patent 5,776,327), and the rejection of claims 44-46 and 48 at paragraph 13 of the Office Action over van Kempen in view of the admitted prior art and Wilson et al. (Published Application 2005/0178667) are no longer issues.

This Response addresses the rejection of claims 36 and 37 under 35 U.S.C. § 103(a) as being unpatentable over van Kempen et al. in view of Botts et al. further in view of the Lowenheim text, *Electroplating*.

As a result of amending claim 21 to present claim 37 in independent form, the invention is now drawn to a method for electrodepositing a metal on a workpiece in which the plating cell includes the workpiece (102), as a cathode, and an anode chamber (126) that includes at least one anode (112) and a porous anode cloth (128). That anode cloth is oriented in planar parallel relation to the major surface of the workpiece (102) and defines a laminar channel between the workpiece and the anode chamber. Using this cell, the method includes the steps of passing electrolyte solution from an eductor (116) over the flow-directing surface of a solution flow dampening member (136) to produce a solution flow that is uniform and parallel to the major surface of the workpiece (102) and is also parallel to the major surface of the anode chamber (126) and the anode cloth (128). In combination, the major surface of the workpiece and the major surface of the cloth in the anode chamber function to define a channel that maintains a uniform laminar flow across the surface of the workpiece. To assist the Examiner with his

understanding of the geometry of the anode chamber cell used in the invention, the applicants are attaching two figures that illustrate anode chambers. In Exhibit A, the anode (a) includes a plurality of anode balls (b) that are retained in cylindrical baskets (c) that are suspended in the cathode chamber (d). In Exhibit B, that anode is further included within an anode sock (e).

The van Kempen reference does not teach a plating cell including an anode chamber including a parallel anode cloth as described above. In making the rejection, the Office states in paragraph 12 of the Office Action that it would have been obvious to utilize an anode bag in the van Kempen et al. process to reduce contamination of the electrolyte solution with anode sludge. However, the applicants note that the invention is not directed to the use of a anode bag but rather to the use of a porous cloth that provides a “virtual” anode “plate” that has a distinctly different function than a conventional anode bag. This should be more apparent to the Office from the attached figures. The porous anode cloth runs in a parallel planar relationship to the workpiece and thereby creates a planar channel through which the electrolyte flows. In this manner, the applicants are able to establish a very uniform laminar flow and thereby produce a more uniform plated surface than can be produced when an anode chamber not having the porous cloth is used. Regarding the citation of Botts et al., the applicants note that Botts et al does not teach an anode box having an anode cloth and, as such, the combination of Botts et al and the van Kempen reference does not yield the invention.

The improvement that is achieved in the present invention, as now claimed, is apparent from the results shown in Table 2 at paragraph 0105 of the published application. Table 2 provides the coefficient of variability (CoV) across the workpiece. When plating without an anode chamber in the cell, the CoV is 14.8. When the anode chamber is present without the porous cloth, CoV is 11.61, and when the chamber is present with the fiber cloth, CoV is 7.72. Accordingly, the results in Table 2 show that by constructing a cell in which the electrolyte solution flow is directed across the face of the workpiece using eductors in combination with an anode box including a porous anode cloth, a superior result in the form of a low coefficient of variability is achieved.

Serial No.: 10/804,841
Attorney Docket No.: 461987-00024
Amendment

In view of the foregoing, the applicants submit that the rejections set forth in the Official Action of September 21, 2007, should be withdrawn.

In the event the Examiner wishes to discuss any aspect of this response, he is invited to contact the undersigned at the telephone number indicated below.

The Commissioner is hereby authorized to charge any additional fees required, including the fee for an extension of time, or to credit any overpayment to Deposit Account 20-0809. The applicant(s) hereby authorizes the Commissioner under 37 C.F.R. §1.136(a)(3) to treat any paper that is filed in this application which requires an extension of time as incorporating a request for such an extension.

Respectfully submitted,

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